SEQUENCE LISTING

<110> OLSON, ERIC
       SPENCER, JEFFREY A.

<120> METHODS AND COMPOSITIONS FOR STABILIZING MICROTUBULES
      IN STRIATED MUSCLE CELLS

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<141> 2001-07-18

<150> 60/219,020
<151> 2000-07-18

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<170> PatentIn Ver. 2.1

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tgaccgagga agggtgcaca ggcaggggag aaggccaacg acagggccac agcgaggcag 180

gctccagagc gccgcggg atg aac ttc acg gtg ggt ttc aag ccg ctg cta   231
                    Met Asn Phe Thr Val Gly Phe Lys Pro Leu Leu
                     1   5   10

ggg gat gcg cac aac atg gac aac ttg gag aag cag ctc att tgc ccc   279
Gly Asp Ala His Asn Met Asp Asn Leu Glu Lys Gln Leu Ile Cys Pro
             15   20   25

atc tgc ctg gag atg ttc tcc aag ccc gtg gtg atc ttg ccc tgc caa   327
Ile Cys Leu Glu Met Phe Ser Lys Pro Val Val Ile Leu Pro Cys Gln
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cac aac ctg tgc cgc aag tgt gcc aac gac gtc ttc cag gcc tct aat   375
His Asn Leu Cys Arg Lys Cys Ala Asn Asp Val Phe Gln Ala Ser Asn
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cct ctg tgg caa tcc cgg ggc tcc aca acg gtg tct tca gga gga cgt   423
Pro Leu Trp Gln Ser Arg Gly Ser Thr Thr Val Ser Ser Gly Gly Arg
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ttc cga tgc cca tct tgt agg cac gag gtt gtc ctg gac agg cat ggt   471

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gtc tat ggc ctg cag cgg aac ctg cta gtg gag aac atc att gac atc      519
Val Tyr Gly Leu Gln Arg Asn Leu Leu Val Glu Asn Ile Ile Asp Ile
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tac aag cag gag tcc tcc cgg cca ctg cac gcc aag gct gaa cag cac      567
Tyr Lys Gln Glu Ser Ser Arg Pro Leu His Ala Lys Ala Glu Gln His
          110                 115                 120

ctc atg tgt gag gag cac gag gac gag aag atc aac atc tac tgc ctg      615
Leu Met Cys Glu Glu His Glu Asp Glu Lys Ile Asn Ile Tyr Cys Leu
      125                 130                 135

agc tgc gag gtg ccc acc tgc tct ctc tgc aag gtt ttc ggc gcc cac      663
Ser Cys Glu Val Pro Thr Cys Ser Leu Cys Lys Val Phe Gly Ala His
140                 145                 150                 155

aag gac tgt gag gtg gcc cct ctg ccc acc att tac aaa cgc cag aag      711
Lys Asp Cys Glu Val Ala Pro Leu Pro Thr Ile Tyr Lys Arg Gln Lys
                    160                 165                 170

agt gag ctg agc gat ggc atc gcg atg ctg gtg gcg ggc aat gac cgt      759
Ser Glu Leu Ser Asp Gly Ile Ala Met Leu Val Ala Gly Asn Asp Arg
                  175                 180                 185

gtg cag gca gtg atc acc cag atg gag gag gtg tgc cag acc att gag      807
Val Gln Ala Val Ile Thr Gln Met Glu Glu Val Cys Gln Thr Ile Glu
              190                 195                 200

gac aac agc cgc aga cag aag caa ctg tta aac cag agg ttc gag acc      855
Asp Asn Ser Arg Arg Gln Lys Gln Leu Leu Asn Gln Arg Phe Glu Thr
          205                 210                 215

ctg tgc gcg gtt ttg gag gag cgc aag ggc gaa ctg ctt caa gca ctg      903
Leu Cys Ala Val Leu Glu Glu Arg Lys Gly Glu Leu Leu Gln Ala Leu
220                 225                 230                 235

gcc cgg gag cag gag gag aag ttg cag cgc gtg cgg ggc ctc atc cgc      951
Ala Arg Glu Gln Glu Glu Lys Leu Gln Arg Val Arg Gly Leu Ile Arg
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cag tac gga gac cac ttg gag ggc tcc tca aag ctg gtg gag tcc gcc      999
Gln Tyr Gly Asp His Leu Glu Gly Ser Ser Lys Leu Val Glu Ser Ala
                  255                 260                 265

atc cag tcc atg gag gag ccg cag atg gct ctc tac ctc cag cag gca     1047
Ile Gln Ser Met Glu Glu Pro Gln Met Ala Leu Tyr Leu Gln Gln Ala
          270                 275                 280

aag gag ctg atc aac aag gtc ggg gca atg tcg aag gtg gag ctg gca     1095
Lys Glu Leu Ile Asn Lys Val Gly Ala Met Ser Lys Val Glu Leu Ala
          285                 290                 295

gga cgg ccg gag cca ggc tat gag agc atg gag caa ttc tct gtg agc     1143
Gly Arg Pro Glu Pro Gly Tyr Glu Ser Met Glu Gln Phe Ser Val Ser
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Val Glu His Val Ala Glu Met Leu Arg Thr Ile Asp Phe Gln Pro Gly
                320                 325                 330

gcc gct ggg gat gaa gag gat gac gac atg gct ttg gat ggg gag gag   1239
Ala Ala Gly Asp Glu Glu Asp Asp Asp Met Ala Leu Asp Gly Glu Glu
                335                 340                 345

ggc aat gcg ggg ctg gag gag gag cgg ctg gac gtg cca gaa ggc tca   1287
Gly Asn Ala Gly Leu Glu Glu Glu Arg Leu Asp Val Pro Glu Gly Ser
        350                 355                 360

ggc ctg cac tgacccgact ctgatccaga gcgcacaccc gaagcgggag           1336
Gly Leu His
        365

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Phe Ser Lys Pro Val Val Ile Leu Pro Cys Gln His Asn Leu Cys Arg
            35                  40                  45

Lys Cys Ala Asn Asp Val Phe Gln Ala Ser Asn Pro Leu Trp Gln Ser
        50                  55                  60

Arg Gly Ser Thr Thr Val Ser Ser Gly Gly Arg Phe Arg Cys Pro Ser
65                  70                  75                  80

Cys Arg His Glu Val Val Leu Asp Arg His Gly Val Tyr Gly Leu Gln
                85                  90                  95

Arg Asn Leu Leu Val Glu Asn Ile Ile Asp Ile Tyr Lys Gln Glu Ser
            100                 105                 110

Ser Arg Pro Leu His Ala Lys Ala Glu Gln His Leu Met Cys Glu Glu
        115                 120                 125

His Glu Asp Glu Lys Ile Asn Ile Tyr Cys Leu Ser Cys Glu Val Pro
        130                 135                 140

Thr Cys Ser Leu Cys Lys Val Phe Gly Ala His Lys Asp Cys Glu Val
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Ala Pro Leu Pro Thr Ile Tyr Lys Arg Gln Lys Ser Glu Leu Ser Asp
                 165   170   175

Gly Ile Ala Met Leu Val Ala Gly Asn Asp Arg Val Gln Ala Val Ile
             180   185   190

Thr Gln Met Glu Glu Val Cys Gln Thr Ile Glu Asp Asn Ser Arg Arg
         195   200   205

Gln Lys Gln Leu Leu Asn Gln Arg Phe Glu Thr Leu Cys Ala Val Leu
     210   215   220

Glu Glu Arg Lys Gly Glu Leu Leu Gln Ala Leu Ala Arg Glu Gln Glu
225   230   235   240

Glu Lys Leu Gln Arg Val Arg Gly Leu Ile Arg Gln Tyr Gly Asp His
             245   250   255

Leu Glu Gly Ser Ser Lys Leu Val Glu Ser Ala Ile Gln Ser Met Glu
             260   265   270

Glu Pro Gln Met Ala Leu Tyr Leu Gln Gln Ala Lys Glu Leu Ile Asn
         275   280   285

Lys Val Gly Ala Met Ser Lys Val Glu Leu Ala Gly Arg Pro Glu Pro
     290   295   300

Gly Tyr Glu Ser Met Glu Gln Phe Ser Val Ser Val Glu His Val Ala
305   310   315   320

Glu Met Leu Arg Thr Ile Asp Phe Gln Pro Gly Ala Ala Gly Asp Glu
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Glu Asp Asp Asp Met Ala Leu Asp Gly Glu Glu Gly Asn Ala Gly Leu
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                       Met Ser Thr Ser Leu Asn Tyr Lys Ser Phe Ser

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aaa gag cag cag acc atg gat aac ttg gaa aag caa ctg atc tgt ccc    160
Lys Glu Gln Gln Thr Met Asp Asn Leu Glu Lys Gln Leu Ile Cys Pro
            15              20              25

atc tgc cta gag atg ttc acg aag cct gtg gtc att ctc cct tgc cag    208
Ile Cys Leu Glu Met Phe Thr Lys Pro Val Val Ile Leu Pro Cys Gln
        30              35              40

cac aac ctg tgc agg aaa tgt gcc agt gac atc ttc cag gcc tct aac    256
His Asn Leu Cys Arg Lys Cys Ala Ser Asp Ile Phe Gln Ala Ser Asn
        45              50              55

ccg tac tta ccc aca aga gga ggc acc acc gtg gca tca ggg ggc cgc    304
Pro Tyr Leu Pro Thr Arg Gly Gly Thr Thr Val Ala Ser Gly Gly Arg
60              65              70                      75

ttc cgc tgt ccc tcc tgc aga cat gag gtg gtg tta gac aga cat ggg    352
Phe Arg Cys Pro Ser Cys Arg His Glu Val Val Leu Asp Arg His Gly
                80              85              90

gtc tat gga ctg cag agg aac ctg ctc gtg gaa aac att att gat atc    400
Val Tyr Gly Leu Gln Arg Asn Leu Leu Val Glu Asn Ile Ile Asp Ile
            95              100             105

tac aag cag gaa tcc acc agg cca gaa aaa aaa ttg gac cag ccc atg    448
Tyr Lys Gln Glu Ser Thr Arg Pro Glu Lys Lys Leu Asp Gln Pro Met
            110             115             120

tgt gaa gag cat gaa gag gaa cgc atc aac atc tat tgt ctg aac tgt    496
Cys Glu Glu His Glu Glu Glu Arg Ile Asn Ile Tyr Cys Leu Asn Cys
    125             130             135

gaa gtg ccc acc tgt tcc ttg tgc aag gtt ttt ggc gcc cat aag gac    544
Glu Val Pro Thr Cys Ser Leu Cys Lys Val Phe Gly Ala His Lys Asp
140             145             150                     155

tgc cag gtg gct ccc ctg act cat gtg ttc cag agg cag aag tca gag    592
Cys Gln Val Ala Pro Leu Thr His Val Phe Gln Arg Gln Lys Ser Glu
                160             165             170

ctc agt gat ggt att gct gta ctt gtg gga agc aac gat aga gtc cag    640
Leu Ser Asp Gly Ile Ala Val Leu Val Gly Ser Asn Asp Arg Val Gln
                175             180             185

ggt gtg atc agc cag ctg gag gac acc tgt aaa act att gag gag tgc    688
Gly Val Ile Ser Gln Leu Glu Asp Thr Cys Lys Thr Ile Glu Glu Cys
            190             195             200

tgc aga aag cag aaa cag gac ctg tgt gag aaa ttt gat cac cta tac    736
Cys Arg Lys Gln Lys Gln Asp Leu Cys Glu Lys Phe Asp His Leu Tyr
    205             210             215

ggc atc ctg gag gag agg aag act gaa atg acc caa gcc atc act cga    784
Gly Ile Leu Glu Glu Arg Lys Thr Glu Met Thr Gln Ala Ile Thr Arg
220             225             230             235
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aca cag gag gag aaa ctg gaa cat gtc cga act ctt atc agg aag tat    832
Thr Gln Glu Glu Lys Leu Glu His Val Arg Thr Leu Ile Arg Lys Tyr
            240               245               250

tcc gat cac ctg gag aac gta tcc aag ttg gtg gag tca gga atc cag    880
Ser Asp His Leu Glu Asn Val Ser Lys Leu Val Glu Ser Gly Ile Gln
            255               260               265

ttc atg gat gag ccc gaa atg gca gta ttt ctg cag aat gcc aag acc    928
Phe Met Asp Glu Pro Glu Met Ala Val Phe Leu Gln Asn Ala Lys Thr
            270               275               280

ctg ttg caa aag atc gtg gaa gca tca aag gcg ttt cag atg gag aaa    976
Leu Leu Gln Lys Ile Val Glu Ala Ser Lys Ala Phe Gln Met Glu Lys
            285               290               295

cta gaa caa ggt tat gag atc atg agc aac ttc act gtc aat ctc aat   1024
Leu Glu Gln Gly Tyr Glu Ile Met Ser Asn Phe Thr Val Asn Leu Asn
300               305               310               315

aga gaa gaa aaa att atc cgt gaa att gac ttt tct aga gaa gag gaa   1072
Arg Glu Glu Lys Ile Ile Arg Glu Ile Asp Phe Ser Arg Glu Glu Glu
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gag gaa gaa gat gca gga gaa ata gat gaa gaa gga gaa gga gag gat   1120
Glu Glu Glu Asp Ala Gly Glu Ile Asp Glu Glu Gly Glu Gly Glu Asp
                335               340               345

gca gta gaa gta gaa gag gca gaa aat gtt caa ata gca tct tca ggg   1168
Ala Val Glu Val Glu Glu Ala Glu Asn Val Gln Ile Ala Ser Ser Gly
            350               355               360

gaa gag gag agt ctg gag aaa gct gca gag ccc tct cag ctt ccc gca   1216
Glu Glu Glu Ser Leu Glu Lys Ala Ala Glu Pro Ser Gln Leu Pro Ala
            365               370               375

gag ctt cag gtc gcc cca gag cca cta cct gct tcc tct cca gaa ccg   1264
Glu Leu Gln Val Ala Pro Glu Pro Leu Pro Ala Ser Ser Pro Glu Pro
380               385               390               395

ttt tca tcc atg cca cct gct gca gat gtc ctg gtg aca cag ggg gag   1312
Phe Ser Ser Met Pro Pro Ala Ala Asp Val Leu Val Thr Gln Gly Glu
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gtg gtg ccc att ggc tct cag cag acc aca cag tct gaa act tca ggc   1360
Val Val Pro Ile Gly Ser Gln Gln Thr Thr Gln Ser Glu Thr Ser Gly
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cct tca gca gcg gaa act gcg gat ccc ttg ttt tac cct agt tgg tat   1408
Pro Ser Ala Ala Glu Thr Ala Asp Pro Leu Phe Tyr Pro Ser Trp Tyr
            430               435               440

aaa ggc caa agc cgg aaa acc agc tcc aac cca cct tgc act cat ggg   1456
Lys Gly Gln Ser Arg Lys Thr Ser Ser Asn Pro Pro Cys Thr His Gly
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Ser Glu Gly Leu Gly Gln Ile Gly Pro Leu Gly Ile Glu Asp Ser Ser
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gtg cag tcc gca gaa gtg gca gaa gcc gca acc aat gag cag gca gca    1552
Val Gln Ser Ala Glu Val Ala Glu Ala Ala Thr Asn Glu Gln Ala Ala
                480             485             490

gtg agt ggt aag gag tct agt tca act gca gct acc tct cag att gga    1600
Val Ser Gly Lys Glu Ser Ser Ser Thr Ala Ala Thr Ser Gln Ile Gly
            495             500             505

ttt gag gcc cct tct ccc cag gga cag tct gca gcc ttg ggg agt ggg    1648
Phe Glu Ala Pro Ser Pro Gln Gly Gln Ser Ala Ala Leu Gly Ser Gly
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ggt ggg gtg atc ctg agc cag ctc gcc acg tct tct cct tct cct ggt    1696
Gly Gly Val Ile Leu Ser Gln Leu Ala Thr Ser Ser Pro Ser Pro Gly
        525             530             535

ttg aat tcc cta aat gaa taatatttat tctcgttgct gcccctgtc           1744
Leu Asn Ser Leu Asn Glu
540             545

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Phe Thr Lys Pro Val Val Ile Leu Pro Cys Gln His Asn Leu Cys Arg
        35   40   45

Lys Cys Ala Ser Asp Ile Phe Gln Ala Ser Asn Pro Tyr Leu Pro Thr
    50   55   60

Arg Gly Gly Thr Thr Val Ala Ser Gly Gly Arg Phe Arg Cys Pro Ser
65   70   75   80

Cys Arg His Glu Val Val Leu Asp Arg His Gly Val Tyr Gly Leu Gln
            85   90   95

Arg Asn Leu Leu Val Glu Asn Ile Ile Asp Ile Tyr Lys Gln Glu Ser
        100   105   110

Thr Arg Pro Glu Lys Lys Leu Asp Gln Pro Met Cys Glu Glu His Glu
        115   120   125

Glu Glu Arg Ile Asn Ile Tyr Cys Leu Asn Cys Glu Val Pro Thr Cys
    130   135   140

Ser Leu Cys Lys Val Phe Gly Ala His Lys Asp Cys Gln Val Ala Pro
145   150   155   160

Leu Thr His Val Phe Gln Arg Gln Lys Ser Glu Leu Ser Asp Gly Ile
            165   170   175

Ala Val Leu Val Gly Ser Asn Asp Arg Val Gln Gly Val Ile Ser Gln
            180   185   190

Leu Glu Asp Thr Cys Lys Thr Ile Glu Glu Cys Cys Arg Lys Gln Lys
        195   200   205

Gln Asp Leu Cys Glu Lys Phe Asp His Leu Tyr Gly Ile Leu Glu Glu
    210   215   220

Arg Lys Thr Glu Met Thr Gln Ala Ile Thr Arg Thr Gln Glu Glu Lys
225   230   235   240

Leu Glu His Val Arg Thr Leu Ile Arg Lys Tyr Ser Asp His Leu Glu
            245   250   255

Asn Val Ser Lys Leu Val Glu Ser Gly Ile Gln Phe Met Asp Glu Pro
            260   265   270

Glu Met Ala Val Phe Leu Gln Asn Ala Lys Thr Leu Leu Gln Lys Ile
    275   280   285

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Val Glu Ala Ser Lys Ala Phe Gln Met Glu Lys Leu Glu Gln Gly Tyr
    290                 295                 300

Glu Ile Met Ser Asn Phe Thr Val Asn Leu Asn Arg Glu Glu Lys Ile
305                 310                 315                 320

Ile Arg Glu Ile Asp Phe Ser Arg Glu Glu Glu Glu Glu Glu Asp Ala
            325                 330                 335

Gly Glu Ile Asp Glu Glu Gly Glu Gly Glu Asp Ala Val Glu Val Glu
            340                 345                 350

Glu Ala Glu Asn Val Gln Ile Ala Ser Ser Gly Glu Glu Glu Ser Leu
        355                 360                 365

Glu Lys Ala Ala Glu Pro Ser Gln Leu Pro Ala Glu Leu Gln Val Ala
        370                 375                 380

Pro Glu Pro Leu Pro Ala Ser Ser Pro Glu Pro Phe Ser Ser Met Pro
385                 390                 395                 400

Pro Ala Ala Asp Val Leu Val Thr Gln Gly Glu Val Val Pro Ile Gly
            405                 410                 415

Ser Gln Gln Thr Thr Gln Ser Glu Thr Ser Gly Pro Ser Ala Ala Glu
            420                 425                 430

Thr Ala Asp Pro Leu Phe Tyr Pro Ser Trp Tyr Lys Gly Gln Ser Arg
            435                 440                 445

Lys Thr Ser Ser Asn Pro Pro Cys Thr His Gly Ser Glu Gly Leu Gly
    450                 455                 460

Gln Ile Gly Pro Leu Gly Ile Glu Asp Ser Ser Val Gln Ser Ala Glu
465                 470                 475                 480

Val Ala Glu Ala Ala Thr Asn Glu Gln Ala Ala Val Ser Gly Lys Glu
            485                 490                 495

Ser Ser Ser Thr Ala Ala Thr Ser Gln Ile Gly Phe Glu Ala Pro Ser
            500                 505                 510

Pro Gln Gly Gln Ser Ala Ala Leu Gly Ser Gly Gly Val Ile Leu
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Glu
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gcagaccatg ataacttgg aaaagcaact gatctgtccc atctgcctag agatgttcac 180

gaagcctgtg gtcattctcc cttgccagca caacctgtgc aggaaatgtg cgggcccccc 240

ttggagacaa agacttggtg tgacgcaggt gggcaagaca gtcgcatttc aaagcaat 298

atg gat tat aaa tct agc ctg att cct gat gga aac gct atg gag aac   346
Met Asp Tyr Lys Ser Ser Leu Ile Pro Asp Gly Asn Ala Met Glu Asn
 1   5   10   15

ctg gag aag cag ctg atc tgc ccc atc tgc ctg gag atg ttt acc aag   394
Leu Glu Lys Gln Leu Ile Cys Pro Ile Cys Leu Glu Met Phe Thr Lys
            20   25   30

cct gtg gtc atc ctg ccc tgc caa cac aac ctc tgc cgg aag tgt gcc   442
Pro Val Val Ile Leu Pro Cys Gln His Asn Leu Cys Arg Lys Cys Ala
            35   40   45

aac gac atc ttc cag gct gcg aat ccc tac tgg acc aac cgc ggt ggc   490
Asn Asp Ile Phe Gln Ala Ala Asn Pro Tyr Trp Thr Asn Arg Gly Gly
        50   55   60

tca gtg tcc atg tct gga ggt cgt ttc cgt tgc ccc tcg tgc cgc cat   538
Ser Val Ser Met Ser Gly Gly Arg Phe Arg Cys Pro Ser Cys Arg His
 65   70   75   80

gaa gtg atc atg gac cgg cac ggg gtg tac ggc ctg cag agg aac ctg   586
Glu Val Ile Met Asp Arg His Gly Val Tyr Gly Leu Gln Arg Asn Leu
                85   90   95

ctg gtg gaa aac atc att gac atc tac aag cag gag tgc tcc agt cgg   634
Leu Val Glu Asn Ile Ile Asp Ile Tyr Lys Gln Glu Cys Ser Ser Arg
            100   105   110

ccc ctg cag aaa ggc agc cac ccg atg tgc aag gaa cac gaa gac gag   682
Pro Leu Gln Lys Gly Ser His Pro Met Cys Lys Glu His Glu Asp Glu
            115   120   125

aag atc aac atc tac tgt ctc acg tgt gag gtg cct act tgc tcc ttg   730
Lys Ile Asn Ile Tyr Cys Leu Thr Cys Glu Val Pro Thr Cys Ser Leu
            130   135   140

tgc aag gtg ttt ggg gct cac cag gcc tgt gag gtt gcc cct ttg caa   778
Cys Lys Val Phe Gly Ala His Gln Ala Cys Glu Val Ala Pro Leu Gln
145   150   155   160

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agc atc ttc caa gga cag aag act gag ctg agt aac tgc atc tcc atg    826
Ser Ile Phe Gln Gly Gln Lys Thr Glu Leu Ser Asn Cys Ile Ser Met
                165             170             175

ctg gtg gcg ggg aac gac cga gtg cag acg atc atc tct cag ctg gag    874
Leu Val Ala Gly Asn Asp Arg Val Gln Thr Ile Ile Ser Gln Leu Glu
                180             185             190

gac tcg tgc aga gtg acc aag gag aat agc cac cag gtg aag gag gag    922
Asp Ser Cys Arg Val Thr Lys Glu Asn Ser His Gln Val Lys Glu Glu
                195             200             205

ctg agt cag aag ttt gac acc ctc tac gcc atc ctg gat gag aag aag    970
Leu Ser Gln Lys Phe Asp Thr Leu Tyr Ala Ile Leu Asp Glu Lys Lys
        210             215             220

agc gag ctg ctg cag cgg atc acg cag gag cag gag gag aag ctg ggc   1018
Ser Glu Leu Leu Gln Arg Ile Thr Gln Glu Gln Glu Glu Lys Leu Gly
225             230             235             240

ttc atc gag gct ctg atc ctc cag tac agg gag cag ctg gaa aag tcc   1066
Phe Ile Glu Ala Leu Ile Leu Gln Tyr Arg Glu Gln Leu Glu Lys Ser
                245             250             255

acc aag ctt gtg gag acc gcc atc cag tcc ctg gat gag ccc gga ggg   1114
Thr Lys Leu Val Glu Thr Ala Ile Gln Ser Leu Asp Glu Pro Gly Gly
                260             265             270

gct acc ttc ctc tca agt gcc aag cag ctc atc aag agc att gta gaa   1162
Ala Thr Phe Leu Ser Ser Ala Lys Gln Leu Ile Lys Ser Ile Val Glu
                275             280             285

gcc tcc aag ggc tgc cag ctg ggg aag aca gag caa ggc ttt gag aac   1210
Ala Ser Lys Gly Cys Gln Leu Gly Lys Thr Glu Gln Gly Phe Glu Asn
        290             295             300

atg gac tac ttt act ctg gac tta gaa cac ata gca gag gcc ttg agg   1258
Met Asp Tyr Phe Thr Leu Asp Leu Glu His Ile Ala Glu Ala Leu Arg
305             310             315             320

gcc att gac ttt ggg aca ggt aaa gga tgt gat gtt aca tgt ttg acc   1306
Ala Ile Asp Phe Gly Thr Gly Lys Gly Cys Asp Val Thr Cys Leu Thr
                325             330             335

ttt gaa agg cag cgt tcc tct tgagttctga ggggaactgt taaaaaagtc      1357
Phe Glu Arg Gln Arg Ser Ser
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Pro Val Val Ile Leu Pro Cys Gln His Asn Leu Cys Arg Lys Cys Ala
        35                  40                  45

Asn Asp Ile Phe Gln Ala Ala Asn Pro Tyr Trp Thr Asn Arg Gly Gly
    50                  55                  60

Ser Val Ser Met Ser Gly Gly Arg Phe Arg Cys Pro Ser Cys Arg His
65                  70                  75                  80

Glu Val Ile Met Asp Arg His Gly Val Tyr Gly Leu Gln Arg Asn Leu
                85                  90                  95

Leu Val Glu Asn Ile Ile Asp Ile Tyr Lys Gln Glu Cys Ser Ser Arg
            100                 105                 110

Pro Leu Gln Lys Gly Ser His Pro Met Cys Lys Glu His Glu Asp Glu
        115                 120                 125

Lys Ile Asn Ile Tyr Cys Leu Thr Cys Glu Val Pro Thr Cys Ser Leu
    130                 135                 140

Cys Lys Val Phe Gly Ala His Gln Ala Cys Glu Val Ala Pro Leu Gln
145                 150                 155                 160

Ser Ile Phe Gln Gly Gln Lys Thr Glu Leu Ser Asn Cys Ile Ser Met
                165                 170                 175

Leu Val Ala Gly Asn Asp Arg Val Gln Thr Ile Ile Ser Gln Leu Glu
            180                 185                 190

Asp Ser Cys Arg Val Thr Lys Glu Asn Ser His Gln Val Lys Glu Glu
        195                 200                 205

Leu Ser Gln Lys Phe Asp Thr Leu Tyr Ala Ile Leu Asp Glu Lys Lys
    210                 215                 220

Ser Glu Leu Leu Gln Arg Ile Thr Gln Glu Gln Glu Glu Lys Leu Gly
225                 230                 235                 240

Phe Ile Glu Ala Leu Ile Leu Gln Tyr Arg Glu Gln Leu Glu Lys Ser
                245                 250                 255

Thr Lys Leu Val Glu Thr Ala Ile Gln Ser Leu Asp Glu Pro Gly Gly
            260                 265                 270
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Ala Thr Phe Leu Ser Ser Ala Lys Gln Leu Ile Lys Ser Ile Val Glu
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Ala Ser Lys Gly Cys Gln Leu Gly Lys Thr Glu Gln Gly Phe Glu Asn
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Met Asp Tyr Phe Thr Leu Asp Leu Glu His Ile Ala Glu Ala Leu Arg
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Ala Ile Asp Phe Gly Thr Gly Lys Gly Cys Asp Val Thr Cys Leu Thr
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Phe Glu Arg Gln Arg Ser Ser
        340